

GARRIGUES (H.J.)

COMPLIMENTS OF THE AUTHOR.

THE
OBSTETRIC TREATMENT
OF
THE PERINEUM.

BY

HENRY J. GARRIGUES, A.M., M.D.,

Physician to the Gynecological Department of the German Dispensary, Fellow of the
American Gynecological Society, etc.

(WITH NINE WOODCUTS.)



*Reprinted from the AMERICAN JOURNAL OF OBSTETRICS AND DISEASES
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It is a strange fact that the anatomy of an organ which is daily subject to the eye and touch of gynecologists and obstetricians, as the vulva, yet seems rather obscure to many of them. Even in recent authors, palpable errors are found. A very common mistake is to confound the entrance of the vulva, *rima pudendi*, with that of the vagina, *introitus vaginae*. These two openings are entirely different from one another as to site, size, shape, and composition of surrounding parts. The vulvar orifice is situated on the surface of the body; forms, if not dilated, a straight line running in an antero-posterior direction, and is limited by the labia majora. The vaginal orifice, on the other hand, is situated at the bottom of the vulva, is circular, and surrounded by a striped muscle, the *constrictor vaginae*. This point is not without practical importance when we come to speak of incisions into the outlet of the obstetric canal. Some authors recommend incisions into the vaginal orifice, while from other expressions it is clear that they mean incisions into the labia majora. Incisions into the

vaginal orifice are quite a different thing. Both procedures are used, and it is important not to designate them in such a way that the reader is led to take one for the other. In olden times, the expressions *vulva*, *matræ*, and *uterus* were all used to designate the whole genital canal, as proved by Dr. Wm. Goodell in his learned history of the treatment of the perineum.¹ This has led to many misunderstandings, and still does so. It is, therefore, a decided improvement, when nowadays we divide the canal by which the fetus passes into three distinct parts with well defined names: the vulva, the vagina, and the uterus; the limit between the first two being the hymen, or its remnants, and between the latter two, the external orifice of the uterus, commonly called os uteri. Obstetrical authors ought strictly to conform to these divisions established by modern anatomy.

Another point which is often not clearly understood, neither by authors nor practitioners, is what the *fourchette* or *frenulum* is. Those who are opposed to immediate and energetic treatment of a laceration of the perineum, are very apt to say that only the fourchette was torn, in all cases in which the laceration does not extend through the whole length of the perineum. In one of the best recent articles on the perineum, the author, in speaking of the fourchette, calls it "that mucous fold." The fourchette is not formed of mucous membrane, but of skin. It is indeed nothing else than the *commissura posterior*, *i. e.*, the posterior junction of the labia majora. These labia grow thinner toward their posterior end, and finally a mere fold or duplicature of skin stretches from one side to the other. If we separate the labia majora and watch the posterior commissure, we see how it gradually advances farther and farther up until it reaches the level of the posterior border of the introitus vaginæ. Thus a fold and a hollow are formed; the fold is the fourchette, the hollow is the *fossa navicularis*. The lower surface of this fold has the common character of the skin; the upper one is red, moist, and forms a transition to the true mucous membrane, which first begins on the labia minora. Although the inner surface of the labia majora looks much like a mucous membrane, it is

¹ Goodell: A Critical Inquiry into the Management of the Perineum during Labor, in American Journal of Medical Sciences, 1871, pp. 55-58.

still counted as belonging to the skin, because it is covered with minute hairs. The fourchette, then, is nothing but part of the skin of the perineum, and part of the inner surface of the labia majora.

The *fossa navicularis* does not exist when the labia majora are in apposition. It is first formed, and gets its boat-shape, when the labia majora are separated. Its lower wall is formed by the fourchette, its upper wall by the perineal body; its lower end by the sharp edge of the vulvar orifice; its upper end by the posterior circumference of the vaginal orifice. On

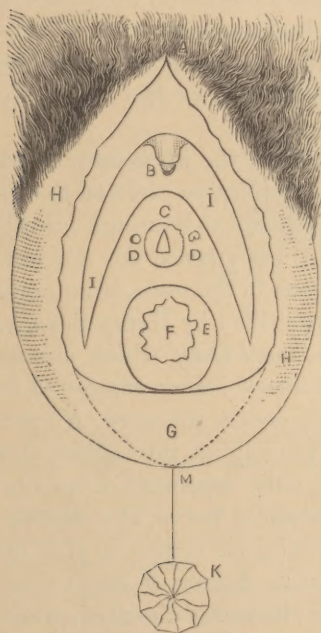


FIG. 1.

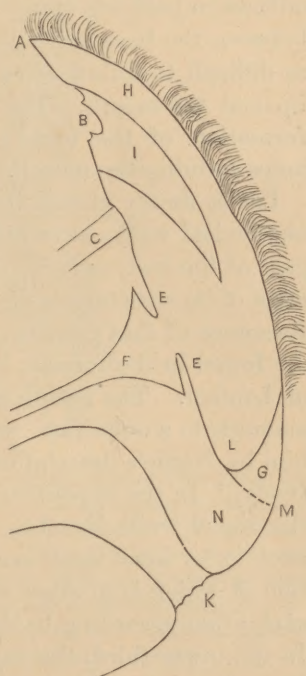


FIG. 2.

FIG. 1. Vulva (from nature). A, anterior commissure. B, clitoris. C, meatus urinarius. D, small recesses. E, hymen (of married woman). F, vaginal orifice. G, frenulum or fourchette stretched by separating labia majora. H, labia majora. I, labia minora. K, anus. M, posterior commissure.

FIG. 2. Supposed sagittal section of vulva (woman lying on her back). A, anterior commissure. B, clitoris. C, urethra. E, hymen (married woman). F, vagina. G, frenulum or fourchette stretched. H, labium majus. I, labium minus. K, anus. L, fossa navicularis. M, posterior commissure. N, perineal body.

both sides it melts into the inner surface of the labia majora. In virgins, the posterior commissure projects a few lines, so that the point M, in fig. 2, lies more anteriorly, and that consequently the line running from it to the vaginal orifice is more curved. In women who have had frequent sexual intercourse, it becomes so lax that the projection is lost, as shown in fig. 2, or, at least, much diminished. The hollow is large enough in the unimpregnated condition, and when the labia are well separated, to admit about one-half of the third phalanx of the index (see figs. 1 and 2). When, therefore, a recent author advises to perform episiotomy by making an incision midway between the fossa navicularis and the fourchette, his advice is as difficult to follow as to make an incision between the lower lip and the mouth. The fourchette contributes indeed to the formation of the fossa navicularis exactly as the lower lip helps forming the mouth.

Let us finally glance at the anatomy of the *perineum*. Most anatomical works have only had their attention directed to this part of the body as found in man, in whom the thorough knowledge of its structure is of paramount importance for the performance of that grandest of operations in the male, lithotomy. As found in the female, it is well described by Henry Savage, of London. The excellent term *perineal body*, which almost amounts to a definition, was, as he himself states, suggested to him by Henle's description, in which occurs the word, *Körper* (body).¹ In the upper two-thirds of the vagina, the vaginal and the rectal walls lie close together, only separated from one another by some loose areolar tissue and a fascia, the destination of which is to allow the rectum and the vagina to slide on each other according to their respective degree of expansion.² In the lower third, the vagina keeps the same direction, while the rectum turns so much backward that, in the upright position, the anus is turned as much backward as downward. The space left between the two is occupied by what is called the

¹ Savage: *The Surgery, Surgical Pathology, and Surgical Anatomy of the Female Pelvic Organs*, 2d edition, London, 1870. Plate I., fig. 3, text. Henle: *Handbuch der Anatomie des Menschen*, 2te Auflage, Braunschweig, 1873, vol. ii., p. 536.

² Wilhelm Braune: *Topographisch-Anatomischer Atlas*, 2te Auflage, Leipzig, 1875. Plate II. and p. 7.

perineal body. This body is much longer than the perineum described in anatomical text-books. According to this description, it is only the space between the anus and the commissura posterior, while the perineal body extends to the vaginal orifice. The perineum proper is much shorter than in the male; it measures only fifteen to twenty millimetres, or about one-half to three-quarters of an inch.¹ On Braune's beautiful drawing, taken from a frozen body, it measures fifteen millimetres, while

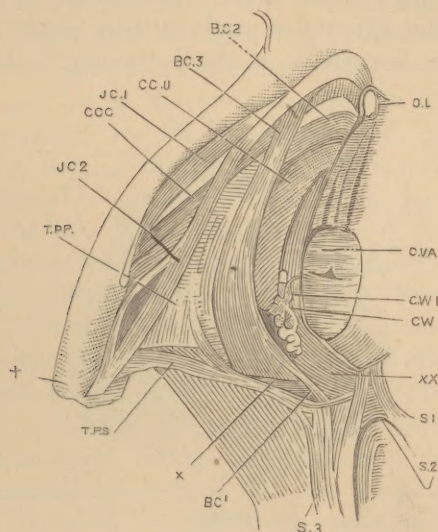


FIG. 3 (Henle²). Perineal muscles. CL, clitoris (turned over to the left side). CCC, corpus cavernosum clitoridis. CCU, corpus cavernosum urethrae (vaginal bulb). CVA, columna vaginae anterior. CW, glandula Cowperi. CW1, duct of Cowper's gland. BC1, 2, 3, bulbo-cavernosus muscle. JC 1, 2, ischio-cavernosus muscle. TPS, transversus perinaei superficialis muscle. TPP, transversus perinaei profundus muscle. S1, 2, 3, sphincter ani externus muscle. XXX, layer of smooth muscles between vagina and rectum. +, limit of pubis and ischium.

the perineal body on the same plate is four and a half centimetres, or one and three-quarter inches long, and four centimetres, or

¹ This is the distance indicated by Sappey in his *Traité d'Anatomie Descriptive*. Paris, 1857-1864, Vol. III., p. 224. It seems to be a little longer in the living body. Dr. F. P. Foster, whose valuable contribution to the anatomy of these parts did not reach me before this paper had gone to press (see January number of this JOURNAL), found an average of 2.7 cm. in nulliparae, and 2.5 in women who have borne children.

² L. c., II., page 456.

one and nine-sixteenths inches high. But during pregnancy the genital parts are so developed that, toward its end, the distance from the anus to the commissura posterior measures four or five centimetres (about one and a half to two inches).¹ On a sagittal section in the medial line, the perineal body has much the shape of the cucurbit of an alembic, the head of which is represented by the loose tissue between the upper part of the vagina and the rectum. This body is by no means an inert mass, only serving to fill out a vacant space. It consists, on the contrary, to a great extent of muscles, partly striped, partly smooth. In treating of the lacerations of the perineum, books generally

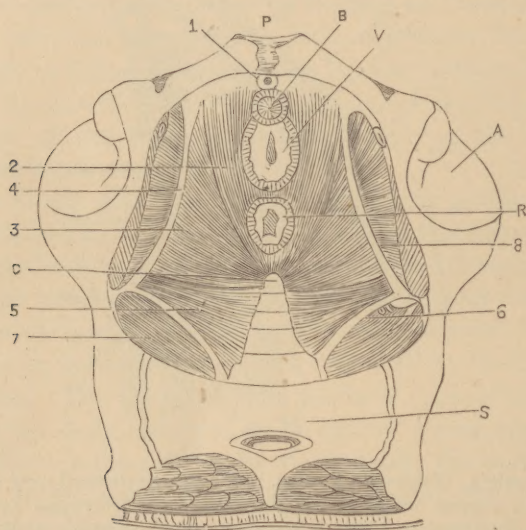


FIG. 4. Muscular floor of pelvis denuded of fascial coverings. Horizontal section passing through the body of the pubis, acetabulum, and sacro-iliac joint, just above the upper margin of the large sacro-sciatic notch. (Savage, Pl. IX., fig. 2). B, neck of bladder. V, vagina. R, rectum. P, pubic symphysis. C, coccyx. S, sacrum. A, acetabulum. 1, anterior vesical ligaments. 2, pubo-coccygeal muscle (anterior part of levator ani muscle). 3, obturatorio-coccygeal muscle (posterior part of levator ani muscle). 4, ilio-pubic line of origin of latter (arcus tendineus). 5, ischio-coccygeal muscle (m. coccygeus). 6, ligamentum spinoso-sacrum. 7, pyriformis muscle. 8, m. obturator internus.

only refer to the sphincter ani, dividing them into two, three, or even four classes, according as the laceration does not reach the said muscle, or just reaches its outer limit, or extends more

or less through it, or finally extends into the gut. This does not give a correct idea of what is really going on during a laceration. As soon as we consider the perineal body as a whole, and from an obstetric stand-point this is absolutely necessary, things appear somewhat different. The sphincter ani externus is, by its innermost bundles, inserted on the skin, but some bundles are immediately continued as bundles of the constrictor vaginae (see fig. 3). Besides, the levator ani muscle enters into the composition of the perineal body (see fig. 4). On the other hand, the superficial transversus perinæi muscle, in many female individuals, does not correspond to its name, for it does not lie in the perineum but is attached to the constrictor vaginae,¹ and the deep muscle of the same name goes always in that direction. A laceration through the middle of the perineal body severs first the bands of organic muscles connecting the two bulbo-cavernosi muscles, which together are called the constrictor vaginae,² next the sphincter ani externus, and finally, the sphincter ani internus, and the two parts are drawn apart by the action of the transversi and the levator ani. This arrangement is one of the reasons why these lacerations so seldom heal, in that sense of the word, that the two raw surfaces coalesce. In the comparatively rare cases in which the laceration takes place, not in the median line, but on one side of it, the transversi muscles of that side are also torn.

Causes of Laceration.—Before we speak of the treatment of the perineum during and immediately after labor, it is well to know whence the danger threatens. The obstetric canal forms a curve (see fig. 5). The propelling force acts from above, almost under right angles to the plane of the brim of the pelvis, as we can tolerably well observe during delivery, and which is admirably demonstrated on Braune's Plate C,³ taken from the frozen cadaver of a woman who drowned herself just at the end of the first period, and actually died during a pain, so that we see the firmly contracted uterus compressing the child and squeezing its head through the pelvis. As

¹ See Savage's first edition, plate I., and second edition, plate IV. Bourguery et Jacob. Anatomie descriptive, vol. ii., plate 105, and p. 62.

² Henle, l. c., ii., 537.

³ The same plate is found, reduced to a small scale, in the second volume of Playfair's Midwifery, London, 1876.

long as the fetus in this way is pushed against the sacrum, it glides off, as it were, from this hard bone. When the os coccygis is reached, this movable organ is bent backward and straightened out. Finally the whole stress comes to bear on the soft perineal body. No wonder, then, that this weak part gives way under the formidable pressure exercised upon it from above. Besides this general danger, to which every perineal body is exposed during delivery, many abnormal circumstances jeopardize its integrity.

The causes of lacerations of the perineum are treated

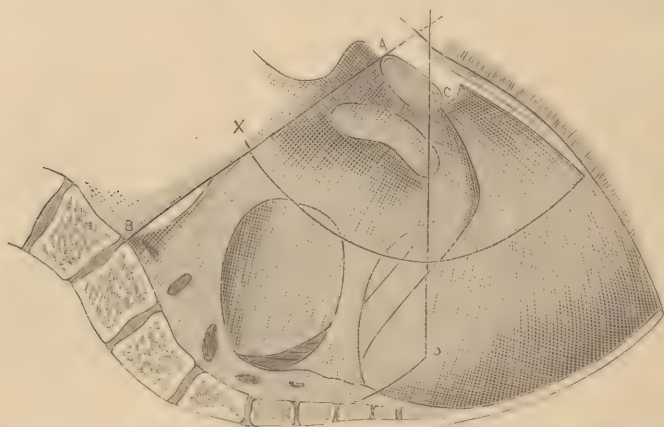


FIG. 5. The obstetric canal.¹ AB, superior strait. CD, inferior strait before the coccyx is bent backwards. X, axis of pelvis.

of more or less elaborately in most of the special works on this subject. I have no new ones to add. I rather doubt some of those indicated by others. I shall, therefore, limit myself to a brief enumeration of the causes alleged by the authors.

With regard to the pelvis, the following faults are accused: too small and, curiously enough, too great inclination of the pelvis; too great a height of the symphysis (the *barrure* of the French) which can scarcely have any influence at all; too straight, or what seems less rational, too curved a sacrum; and too perpendicular a direction of the bones forming the pubic arch, so that this arch, instead of forming a wide curve, as in

¹ Spiegelberg: *Lehrbuch der Geburtshilfe*, Lahr, 1878, p. 23. stated to be taken from Hodge. I have in vain endeavored to find the original.

the well-built woman, approaches the angle, as found in men. This latter circumstance appears to me the most important of all causes, and endangers the perineum greatly, both by itself, and by the measures we often are forced to have recourse to in order to overcome the obstruction it opposes to labor.

Other causes are situated in the soft parts: narrowness or want of elasticity of the vagina and the vulva; a too long perineum; too great thinness of the perineal body. The lack of room, tissue, or elasticity are often attributable to tender or advanced age in primiparæ, or to edema, varices, condylomas, vegetations, ulcerations, or scars.

A third series of causes come from the child, whose body may be generally or partially too large; or the presentation, the position, or the attitude may be unfavorable, *e. g.*, cross or brow presentation, occipito posterior position, prolapse of arm beside the head.

Finally the character of the delivery must be taken into consideration. A precipitated delivery, in which the parts do not get time to expand gradually, is a frequent cause of a laceration of the perineum. The same holds good in forceps deliveries, or cases of manual extraction. Besides, the forceps are apt to injure the perineal body directly, the shanks being pressed or rubbed against it.

The *frequency* with which the perineum is lacerated is very differently stated by authors. While some pretend that a laceration occurs only once in a hundred confinements, Snow Beck found 75 large lacerations in 112 primiparæ.¹ The cause of this great discrepancy is twofold. In the first place, obstetricians differ very much in their views as to the inevitableness and the importance of a laceration of the perineum, so that, while one counts every, even the slightest breach of continuity, the other only considers cases where the whole perineal body is severed from end to end. In the second place, many, especially in private practice, do not examine the genitals at all after confinement, nay, some teachers instruct even their pupils, out of respect for propriety, not to inspect the parts. It has happened to myself that one of my patients, on account of a precipitated labor, had to call in a neighboring physician.

¹ Olshausen: Ueber Dammverletzung und Dammschutz. Volkmann's klinische Vorträge, No. 44, p. 375.

When I arrived, he told me that everything was all right, and the binder had already been fastened. When my confrère had taken his leave, I separated the labia majora, and what should I find but a deep laceration, for which I applied no less than five stitches. This practice seems to have prevailed until quite recently in this country. At least, Dr. M. D. Mann says in 1874: "As a rule with us, the perineum is never exposed during labor, nor is it examined afterwards to see if it has sustained any injury." If this be true, all prophylaxis and all immediate treatment, which form the very subject of this paper, are rendered impossible. But I trust that Dr. Mann's own paper has cleared the way for a better understanding of the duties of the accoucheur in this respect, and since then, many American authors, such as Drs. T. G. Thomas, Noeggerath, Mundé, Pallen, T. A. Emmet, of New York; Goodell, and Albert H. Smith, of Philadelphia; H. F. Campbell, of Augusta, Ga.; W. T. Howard and H. P. C. Wilson, of Baltimore; Skene, of Brooklyn; E. W. Jenks, of Chicago; Lyman, Reynolds, and Richardson, of Boston; have expressed themselves in favor of immediate suture of the lacerated perineum,² which at least supposes an ocular examination after the birth of the child.

In order to give an idea of the frequency of laceration of the perineum, when a careful examination is made, I will only quote Olshausen (l. c., p. 362), who found 21.1 per cent among primiparæ, and 4.7 per cent in multiparæ in his own clinic, and 56 lacerations in 119 primiparæ, *i. e.* 47 per cent, in two other clinics taken together. At all events, lacerations are very common, and we have, therefore, every reason to try our best to avoid them, or, if we do not succeed in that, to remedy them. It ought to be distinctly understood that, if the accoucheur can do a great deal to avoid them, *a certain number of lacerations are unavoidable*, so that the occurrence of this untoward accident is by no means in itself a proof of want of skill or care on his part. He has no occasion to feel ashamed of it, or to try to conceal it.

¹ M. D. Mann: The Immediate Treatment of Superficial Ruptures of the Perineum, in AMER. JOURN. OF OBST., November, 1874, Vol. vii., p. 466.

² AMER. JOURN. OBSTET., November, 1875, Vol. viii., p. 527, seq.; New York Med. Journ., May, 1876, p. 466, seq.; Transactions of the American Gynecological Society, 1876, Vol. i., p. 306, seq.; Boston Med. and Surg. Journ., 18th Dec., 1879, vol. ci., pp. 881-882.

Prophylaxis.—Much may be done in order to prevent or limit a laceration of the perineum. As it is a chief point that the lower part of the obstetric canal should have time to become fully dilated, *ergot ought never to be given during labor.* I use this drug in every confinement, but not before the placenta has been expelled. I give it even for four or five days, because I think that, by causing contraction of the muscular coat of the blood-vessels, it counteracts the absorption of septic matter, and by increasing uterine contraction insures good involution. If it augment after-pains, opiates may be given conjointly. Given during labor it is a dangerous remedy, both for the mother and especially for the child. It is a frequent cause of laceration of the perineum. I do not even like to give it in post-partum hemorrhage, unless I am perfectly sure that the uterus is empty, for I have found it very difficult, after I had given it, to dilate the os internum enough to get a single finger through, which procedure was necessary in order to remove a small piece of the egg-membranes that adhered to the fundus and kept up the hemorrhage. The great danger for the child arises from tetanic contraction of the uterus being brought on, by which the oxygenation of the blood in the placenta is interfered with, resulting in asphyxia. Even without tetanus, a too quick succession of uterine contractions may endanger the life of the child.

In the second place, a thorough *evacuation of the rectum* is very important. In every confinement, I make, therefore, an injection of as much lukewarm suds as the woman can take in, which sometimes is as much as a basinful. I do not pay any attention to the patient's saying that her bowels have moved abundantly. It is surprising what quantities of feces sometimes are expelled even under such circumstances. Thus not only room is gained for the safe passage of the fetus, but we avoid also the repulsive evacuation of feces during the birth of the child.

Next, it is very useful to let the woman be in the *left lateral position* during the passage of the child through the vulvar orifice. During the first period, reason and humanity command us to let her lie in the position in which she feels most comfortable. During the earlier part of the second stage, the dorsal decubitus is preferable, because by proper adjustment

of the feet against some suitable object placed at the end of the bed, and by taking hold of a sheet or rope fastened at the end of the bedstead, the patient may use her muscular force to more advantage, and thereby shorten this period. But as soon as the head begins to pass through the vulva, I let her turn over on her left side. This position has great advantages. The parturient parts become easy of access, and can be made visible, whilst the whole rest of the body is covered up, whereby exposure to cold is avoided, and due regard is taken to propriety. The pudicity of the parturient woman is also consulted by the mere fact that she does not see the accoucheur, and, as it were, hides herself. On the other hand, this renders it possible to perform certain minor operations, such as episiotomy, or the application of serres-fines, without frightening her, which often is worse than the real pain to be endured. The voluntary or often involuntary use of the abdominal muscles which precipitates labor is limited. But, most of all, the left-side decubitus is useful, because in this position the fundus uteri sinks down on the bed, so that gravitation works in an almost opposite direction to the uterine contractions. Thus the perineum has not to carry the weight of the fetus added to the pressure caused by the fetus being pushed against it. Besides being thus in itself a safeguard for the perineum, the left side-position facilitates other measures intended for this purpose, of which we shall speak presently.

The left side-position is an old English invention, the so-called London method, and English accoucheurs use it also during the third stage of labor. This seems to me not only inconvenient for the accoucheur, who is obliged to bend sharply forward in order to be able to grasp the uterus, but less safe for the woman, since the placenta is less readily expelled by the method bearing Credé's name, and hemorrhage less easily prevented or controlled.

In most confinements, such an amount of glairy mucus is secreted, and all the parturient parts are so thoroughly bathed with the warm liquor amnii, that it is superfluous to use artificial *emollients and lubricants*. But when the waters have broken a long time before the child is born, and if the vagina is hot and dry, it is entirely rational to bring about by artificial means conditions similar to those under which Nature

generally works. In such cases, sponging of the perineum with warm water, injection of oatmeal gruel or linseed tea into the vagina, inunction with vaseline, or pouring warm olive oil on the head during its alternate advance and retreat, may become truly useful and conducive to the safety of the perineum. According to Dr. Goodell (l. c., p. 79), inhalation of ether, and especially of chloroform, has the property of re-establishing the natural mucous secretion. Not having had my attention directed toward this point before, I cannot speak of it from personal experience.

In other respects, *chloroform* is certainly of high value as a protection against laceration. Pain being abolished and the abdominal muscles paralyzed, the child is pushed forward by the mere uterine contractions, and even these are weakened by the effect of the drug.

Next we have to consider a class of manipulations performed either with the hands alone or with the forceps, and directed either against the maternal organism or against the fetal body, in order to preserve the integrity of the perineum. In this regard, very different opinions have been put forth, and the question, if any such direct protection ought to be used or not, is not as yet settled, and, of course, there is still less unanimity as to the particular way of affording protection. Dr. Goodell, who has made a thorough study of the history of perineal protection, sums up by the following résumé (l. c., p. 69): "There are those who make pressure upon the perineum to retard the head; those who make pressure to accelerate its advance; those who deny that any such effect can be thus produced; and those who conscientiously use support because something must be done. Again, there are those who direct all the pressure at the fourchette; others who reprehend this, and carefully guard the posterior perineum; and yet others who will not touch the perineum on any account. Further, there are those who push the perineum forwards, and those who, for equally plausible reasons, push it backwards. Some dilate the sphincter vaginae, some the sphincter ani, and some plug it up. Some place their hands transversely across the perineum; some longitudinally, with the fingers looking upwards; some longitudinally, with the fingers looking downwards; some attack it with the knuckles; some scoop out the head with

the vectis, others drag it out by the ears; and yet others rely on the forceps. Finally, there are those who use the right hand, and those who swear by the left hand; some who advocate a folded napkin; some an unfolded napkin; and others again who frown down upon all napkins, folded or unfolded."

Much has been said against *supporting* the perineum both in this country and abroad, and as I am in favor of it, I must briefly review the arguments directed against it. In the first place, it is claimed that it is unnatural to support the perineum; it was not made to be torn. This appeal to teleology leaves out of consideration the fact that man, for nobody knows how many thousand years, has not lived in the primeval natural state. It is not at all unlikely that, with increasing intelligence of mankind, the size of the brain even in the fetus has increased, while, on the other hand, the muscular system of women, and consequently also the perineal body, has become weaker than originally.¹ However this may be, the fact remains that nowadays the perineum is apt to tear, and the question is merely, if we can do anything to avoid this accident? In the second place, the adversaries of support say that a laceration does not necessarily occur; that we may find the perineum entire in women who have borne their children without any assistance at all. Granting the possibility of such an occurrence, it does not prove that we cannot contribute to the attainment of this desirable result by active interference. Next it is argued that those very men who support the perineum have bad statistics with regard to lacerations. This is a specious argument apt to impress itself on the reader's mind at the first glance. It is a fact that the same accoucheurs who advocate perineal support confess to a great number of lacerations, but this fact does by no means prove that the laceration is due to the support. On the contrary, it is likely that the same accoucheurs, if they did not use any support, would have to register a still greater number of lacerations. Madden² says that in one-half of the cases in which he performed perineorrhaphy,

¹ It has been found by actual measurement that the brain and the surrounding bones are more developed, and that, on the other hand, the jaws undergo a retrograde metamorphosis under the influence of civilization. (Klein: *Deutsche Vierteljahrsschrift für Zahnheilkunde*, xvii., *Hospitals Tidende*, 1879, p. 1000).

² Madden: *Lacerations of Perineum*. *AM. JOURN. OBST.*, May, 1872, p. 55.

the cause was neglected support, and that rigidity came only in the second line. Olshausen (l. c., p. 361) thinks that, in fifteen per cent of primiparæ, lacerations of the perineum are unavoidable if episiotomy is not performed, in which computation cases in which the frenulum alone is burst or torn off are not comprised. As we have seen above, the views of different accoucheurs as to the présence or non-présence of a laceration of the perineum differ so widely that a comparison between the results of different men cannot have any value at all as evidence. It might have some weight if the same man, working in an asylum in which a great many confinements take place, during one year would support the perineum in a certain way, and the next year would not use any support at all. But such experiments have not been published so far, and consequently all arguments based on statistics lack the proper foundation. Furthermore, the support of the perineum is taxed with impeding a slow and equable dilatation, with lowering the vitality of the parts, with preventing them from responding in a natural way to the demands of the occasion in pushing the head forward or pressing it backwards, according to circumstances, and with increasing labor pains by reflex action. All these animadversions apply only to a support exercised too early or too forcibly. If we do not support before the presenting part commences to dilate the vulvar orifice; if we are particularly careful during the passage of the greatest circumference of the head; and if we limit our support to a moderate pressure, with the flat hand placed so that the fold between the thumb and the index comes to rest on the posterior commissure, this manipulation is not only innocuous, but very useful. Indeed, by so doing we only fortify the thin, elastic vulvar ring, which is being stretched to its utmost capacity, by applying on it, as it were, a second elastic layer, composed of the skin, the subcutaneous cellular tissue, and the muscles of the palmar surface of the hand. Evidently a thick elastic ring does not burst as easily as a thin one.

It is another question, if it be advisable also to displace the perineum. Some recommend to shove it backward, others forward. I think that, in most instances, neither the one nor the other is good. We must keep the mechanical relations in mind. The fetus forms a kind of bent cylindrical body, the vulvar orifice an elastic ring. It is evident that the ring will be the least

stretched when its diameter intersects the longitudinal axis of the cylinder at right angles. Only if this relation between them does not exist, can it be of use to displace the posterior part of the ring forwards or backwards, according to circumstances. If the vulvar ring encircles the fetal body in the said favorable way, every displacement will only have the effect of subjecting the ring to an unnecessary surplus of stretching, and thereby expose it to break. A glance at fig. 5 will render this point perfectly clear.

An author in this very JOURNAL¹ pretends that the "present German school cautions us against any interference at all." These words contain a double mistake. There is no such thing as a German school. Germany owes its scientific greatness to the fact that the country is studded with universities, each entirely independent of the other. Each of these places is a laboratory in which men work with the earnest purpose of investigating the secrets of nature, and furthering human knowledge. At most, we may speak of a Vienna school, a Berlin school, etc. A German school does not exist. On every subject, the most opposed views will have their spokesmen in different universities. Consequently, modern German obstetricians differ also much in their opinions about the advisability of supporting the perineum. Olshausen, who has written the most elaborately on the subject in recent years in Germany, states that the perineum is supported almost everywhere in Germany, and holds himself that, in cases of membranous perineum, the support of the floor of the pelvis is indispensable (l. c., p. 368).

Until within a few years, I have myself exclusively practised and seen practised the above-described kind of perineal support, and feel perfectly convinced of its usefulness. I have ascertained by direct questioning that, so far from being painful, as some pretend, it is a comfort and a relief to the parturient woman in the most trying moment of child-birth.

Another kind of protection is afforded to the perineum by acting on the body of the fetus. Among the causes of laceration we have mentioned a too speedy expulsion of the child. This is counteracted by direct *pressure on the presenting* part, especially the cranium. Commonly this pressure is only exercised so as to keep back the protruding head. Dr. Goodell (l. c.,

¹ April, 1876, p. 60.

p. 77) even pushes it back into the vagina if it does not recede in the intervals of pains, so that the next pain may expend a portion of its force in recovering lost ground. In cases of manual extraction, the head ought to be drawn as slowly as possible through the vulvar orifice. In forceps deliveries it is advisable, if the condition of the mother or the child does not so imperatively call for the utmost speed as to supersede all other considerations, to take off the forceps when the head has been brought into the vulvar orifice.

It has also been recommended to *rectify the position and the attitude of the child*. If the head is propelled in an oblique direction, some try to turn it with their fingers in such a way that its sagittal section coincides as nearly as possible with the antero-posterior diameter of the vulvar orifice. Some have even recourse to the forceps in order to effectuate this change of position. I cannot speak from personal experience about these manipulations, but, upon the whole, I think that Nature herself performs the best turnings of this kind, and that by enforcing a rectification in one place, we run the risk of doing harm in another place hidden from view. On the other hand, I hold it to be entirely rational to promote the normal extension by pressing the presenting part towards the symphysis pubis. Often we find under the ligamentum arcuatum a free space which may be utilized to lessen the pressure on the perineal body. The pressure against the presenting part may be exercised either from the perineum, or, what is preferable, through the rectum. The woman lying on her left side, the index and middle finger of the left hand are introduced deeply into the rectum, and stemmed against the forehead of the child. We may even take another step, and, during an interval of pains, slowly press the head out through the vulva by a kind of *enucleation*. I have tried this several times, and am so far well satisfied with the result. Like so many other good things, it is an old method which had fallen into oblivion. Ritgen used it, Olshausen (l. c., 369) and Ahlfeld¹ speak highly of it, and it is much used in Halle and Leipzig. Certain precautions must not be neglected in carrying it out. Above all, we must be careful not to injure the eyes of the child; but all parts are so distinctly felt through the recto-vaginal wall that this grave mistake is easily

¹ Archiv für Gynækologie, 1874, vol. vi., p. 279 seq.

avoided. Another point of great importance is not to press with so much force as to cause lacerations in the region of the clitoris. This part is much more abundantly supplied with blood-vessels than the perineum, and lesions there may even give rise to a fatal hemorrhage. A bad laceration of this kind occurred in the practice of Dr. Mundé, of this city, and Peter Müller, of Germany, has had five cases, three of which ended fatally.¹ The proper time for resorting to enucleation is when the anus is pushed forwards and distended, and the vertex during labor-pains is propelled into the vulvar orifice.

This enucleation may, of course, also be used in forceps deliveries after removal of the instrument, when the head has been brought to the vulvar orifice.

Hitherto we have only considered the dangers accruing to the perineum from the passage of the head; but it is threatened as much, or even more, by the passage of the shoulders. Examining during the interval which usually follows the expulsion of the head, I have often convinced myself that the skin between the commissura posterior and the anus was intact, and nevertheless found a considerable laceration of this part after the birth of the child. As, with a normal child, there is no more difficulty for delivery when once the shoulders have passed, we must attribute the accident to the passage of this part. This is also easily understood when we think of the different conformation of the parts in question. In consequence of its round circumference, its tapering top, and its alternate progression and retrocession, the head will, in most cases, open the vulvar ring gradually, and extend it uniformly. The chest with the shoulders, on the contrary, measure much more from side to side than in the antero-posterior direction. The shoulders contain hard parts projecting from soft surroundings; they form a very abrupt transition from the comparatively narrow neck, and are commonly expelled all at once by a single labor-pain. All these circumstances render them more dangerous than the head, and in fact they have only the one advantage, that they come after the parts have already been dilated by the latter. We must, therefore, not think that we are done with the protection of the perineum because the head has been safely

¹ Scanzoni's *Beiträge*, vol. vii., p. 201, and vol. vi., p. 148, quoted by Mundé in this JOURNAL, 1875, vol. viii., p. 537.

born. A distinguished gynecologist has given an advice which seems rather objectionable. He advises to turn the shoulders before they are expelled, in such a way as to give them a more or less oblique direction, so that neither of them glides over the perineum. He says that this turning succeeds generally by merely pushing the shoulders aside, and if it does not, the desired effect is attained by hooking the index finger into the axilla.¹ This doctrine seems altogether to set aside the golden rule that the physician is the servant, not the master of Nature. Nature always leads the greatest diameter of the child through the greatest diameter of the maternal parts, and attains this end by those wonderful turnings and adaptations, the particulars of which are not even fully understood. If we give the shoulders an oblique direction in the vulvar orifice, the walls of this opening adapt themselves less well to the body of the child, and are consequently more exposed to be torn. If there be any reason at all to change the position of the child, the shoulders ought, on the contrary, to be turned in such a way that their breadth corresponds with the length of the vulva, exactly on the same principle as that on which the position of the head is corrected.

More frequently it will be found useful to prevent the simultaneous passage of both shoulders, by pressing back the posterior, or, by pulling forward the anterior with the index hooked into the axilla.

Sometimes even the *forceps* are used as a means of preventing laceration of the perineum. We have already mentioned their use for correcting the position of the head. They are also used for extracting the child; but I doubt whether regard for the safety of the perineum is a good indication for the use of this instrument. It is true that the forceps are often used to put an end to delivery when the head is arrested on the floor of the pelvis; but then deficiency of labor-pains, not regard for the safety of the perineum, gives the indication. In general, forceps deliveries are much more dangerous for the perineum than natural labors. We have, therefore, also seen that it is advisable to take off the blades before the head is drawn over the perineum. In many cases, where the head is arrested immediately behind the vulvar orifice, pressure exercised with

¹ Olshausen, l. c., p. 376.

a finger or two from the rectum may render the resort to the instrument altogether superfluous. *

If all the means hitherto considered do not seem sufficient to save the perineum, we may still try to do so by the operation called *episiotomy*. At the first glance it may appear strange that the accoucheur, in order to avoid a wound, should make one himself; but when we come to consider the matter more carefully, we will find a great difference between the two kinds of injury. The natural rent is commonly directed backwards, single and deeper than necessary. In making an artificial wound, we can choose a more favorable locality, and lessen its depth by multiplying the number of incisions. This method is of old date. Paul Dubois practised it in France,¹ Blundell in England;² Ritgen in Germany.³ Of late years it seems to gain in favor. In this country, Dr. Anna E. Broomall, of Philadelphia, has written a good article on the subject.⁴

The vaginal, not the vulvar orifice, being the narrowest part of the whole canal through which the child has to pass, and being actually injured in every confinement, as ascertained by Matthews Duncan,⁵ it would seem logical to make the incision in this locality. Simpson recommended, indeed, to cut the constrictor vaginae subcutaneously, and others have done the same without sparing the mucous membrane; as a rule, however, these deeper parts are not inspected during delivery, and it is first when the head dilates the vulvar ring, and this organ seems too small or too rigid, that recourse is had to cutting instruments. I prefer blunt scissors to the bistoury, as it is necessary to divide the tough fascia covering the fat of the labia majora, and I have found it difficult to do this with proper nicety with a knife. The cut is apt to be either too deep or too shallow, while the depth is very accurately determined by using the scissors; if performed during a labor-pain, the pain caused by the incision is little noticed. Dr. Pallen⁶ has advised

¹ Chaillay-Honoré: *Traité pratique des accouchements*, 6me éd., Paris, 1873, p. 521.

² Baker Brown: *Diseases of Women*, Amer. ed., Philadelphia, 1856, p. 17.

³ Ritgen: *Ueber Scarification der Scheide u. des Scheidenmundes*, in *Neue Zeitschr. f. Geburtskunde*, 1835, vol. iii., number 1, p. 68.

⁴ *AMER. JOUR. OF OBSTETR.*, 1878, vol. xi., p. 517 seq.

⁵ J. M. Duncan: *Papers on the Female Perineum*, London, 1879, p. 9.

⁶ Pallen in *New York Medical Journal*, May, 1876, p. 469.

to make the incisions on both sides, above the openings of the ducts of Bartholin,¹ lest the ducts be cut, which might lead to closure, cystic degeneration, and abscess. The ducts open by a minute aperture just in front of and outside of the hymen or its site, a locality that scarcely ever will be visible at the time episiotomy is performed. And then, these openings lie so far forward that the incisions would have to be made almost in the middle, between the anterior and posterior end of the vaginal orifice, but here we might wound the *semibulbus vestibuli*, which is in close contact with the gland, and would be liable to cause an unpleasant hemorrhage (see fig. 3). Finally, I believe there is room enough to perform the operation behind the ducts in question. If the incisions be made, as usually recommended, one centimetre to the left and to the right of the posterior commissure, and extended one or one and a half centimetre in the direction of the tuberosity of the os ischii, neither the gland nor its outlet is wounded. This kind of episiotomy is much used, and is without any doubt a good means of preventing laceration of the perineum; but I think its advocates go too far when they claim that these wounds heal within a few days, that a complete union takes place, and that they are not bathed by the lochial secretion.² It is easy enough to convince one's self by mere inspection of the incorrectness of the last statement. As to time, my experience is, that it takes a fortnight before the wounds heal up. Finally, they did by no means heal in this sense that an agglutination and coalescence took place between the cut surfaces; on the contrary, the wounds healed exactly in the same way as perineal lacerations generally heal, that is to say, with a retracted cicatrix. The result is, consequently, that the vulva no more presents a linear cleft, the walls of which touch one another, but a more or less gaping triangle, the posterior angles of which are formed by the cicatrices. One of my patients herself made this discovery, and said that she was "more open than before." This is a drawback which merits to be taken into consideration, as from an esthetic and moral point of view it is desirable that the

¹ The name of this anatomist is often written as Dr. Pallen does, Bartholini, but that is a mistake. He was a Dane, and his name Bartholin.

² Pallen, l. c., p. 469; Broomall, l. c., p. 524; Chailly-Honoré, l. c., p. 521.

genitals after delivery be brought back as near as possible to their original shape. But it is still more important that these little wounds may give rise to infection, which is not the case with a well-stitched laceration. Both these evils might be avoided by suturing the wounds; but if sutures have to be applied, it will in many cases be better to stitch a perineal laceration made by Nature than episiotomy-wounds made by the accoucheur himself, and the necessity of which is problematic. Perhaps the laceration will prove so moderate as not to necessitate sutures at all. Dr. Albert H. Smith,¹ of Philadelphia, cauterizes the cut surfaces with pure carbolic acid, in order to prevent absorption of putrescent materials. In deciding on the propriety of resorting to episiotomy in a given case, many things have to be taken into consideration, besides the probability or non-probability of the occurrence of a laceration. If the circumstances be such that a rent could not be sutured, this would go far in favor of performing episiotomy. On the other hand, this operation does not preclude a perineal laceration with absolute certainty. Thus, the editor of this JOURNAL saw it happen in four cases, in spite of bilateral incisions.²

As soon as the delivery is completed, the accoucheur ought to make an ocular examination of the condition of the perineum by separating the labia majora. We leave out of consideration the rare cases of purely central ruptures not extending subsequently into the vulva, the still rarer perforation limited to the recto-vaginal septum, as well as the lesions situated near the meatus urinarius. If, in spite of all precautions, a perineal laceration has occurred, we find it either on the inner surface of the vulva and vagina only, or at the same time on the skin, behind the posterior commissure. Shallow fissures in the vaginal orifice, as well as slight injuries to the fourchette, need no other treatment than injections with carbolized water (one or two per cent), or an ointment or oil containing from five to ten per cent carbolic acid. Deep lacerations ought to be united immediately. If deep rents occurring in the perineal body, while the skin between the posterior commissure and the anus remain intact, do not heal up, they

¹ St. Louis Med. and Surg. Journal, October, 1879, p. 512.

² This JOURNAL, November, 1875, vol. viii., p. 536.

³ Madden, l. c., p. 52.

cause that membranous condition of the perineum so often found, which does not give sufficient support to the adjacent parts. This kind of rent ought, therefore, to be sutured from the vagina. More commonly the rent extends more or less through the skin, in the direction of the anus; in this class of cases, I use a different treatment, according to the length and height of the rent. It is now an established practice throughout Europe to suture deep perineal lacerations immediately, and, as we have seen above, weighty voices have of late been heard from different parts of this country to the same effect. It is, therefore, superfluous to say anything more on this head. Personally, I regard the immediate suturing of a deep rent in the perineum as such a blessing for the newly confined woman, that I do not even admit as a counterindication that she is too weak to be profoundly anesthetized. I have applied sutures in such cases, either without any anesthetic at all or in an incomplete anesthesia only pushed so far as to somewhat blunt the sensibility. But I believe there is a large number of lacerations, deep enough to indicate artificial union, but not considerable enough to necessitate a proceeding that causes so much pain, takes so much time, and gives rise to so much talk, as the application of sutures. In these cases I make use of *serres-fines*, and, as I am perfectly satisfied with the results obtained, I think it may not be superfluous to enter into some details on this subject.

These small self-holding clamps were invented in 1849 by Vidal de Cassis, of Paris, soon introduced into obstetric practice in France, and adopted in Germany. I am not aware that they ever have been tried in England. In this country they were recommended a few years ago by Dr. M. D. Mann, of New York, who had seen them used in Vienna (l. c.). But the question thus brought up before the American profession was, as it were, drowned in the much larger and more important question if *any* immediate union ought to be aimed at or not. Under such circumstances, the suture of course came into the foreground, and the *serres-fines* were lost sight of. As now the pertinency of recourse to immediate union is recognized everywhere, the time may be more favorable for speaking of the more modest little clamps. I am perfectly aware that they have been abandoned in many places in Germany; but Spiegel-

berg¹ certainly goes too far when he calls them obsolete, for Dr. Mann saw them in daily use in the Vienna Asylum, the largest lying-in institution in German-speaking countries, and I can add that they are used throughout Denmark, and give entire satisfaction. They were introduced there by Dr. A. D. Müller, who in 1866 wrote a treatise on lacerations of the perineum² in which he gave a detailed description of forty-one cases treated in this way as compared with thirty left to Nature's own efforts. Of the forty-one cases, two extended through the sphincter ani, or up into the rectum, and healed only partially. Of the remaining thirty-nine lacerations, twenty-nine were one inch or more in length; ten less than an inch. Twenty-five were completely united by the first intention in from four to six days; seven times the union was complete, except a small angle towards the posterior commissure, which subsequently healed by granulation, so that the perineum retained its whole original length. In two cases, a greater part healed by granulation, so that the whole length of the perineum was preserved. In three cases, union only took place to the extent of one-third to one-half inch; and in two cases no union at all was obtained.³ These figures, which already *prima facie* give a favorable impression of the operation, are still more remarkable when it is borne in mind that all the observations were made in hospital practice.

The editor of this JOURNAL has reported (l. c.) the results obtained by suture in the Würzburg Lying-in Hospital from 1863 to 1870. Out of thirty-four cases, complete union took place only in eleven; partial union in seven; no union in sixteen. Accordingly, in eighteen out of thirty-four or in fifty-five and a half per cent, some degree of union took place; and this is, according to the said well-read author, "about the usual average in hospital practice." If we now group Müller's figures in the same way, we obtain some degree of union in thirty-nine out of forty-one cases, or in ninety-five per cent. We may also post Müller's figures thus: Complete union was obtained in eighty-three per cent (sixty-one per cent by first,

¹ Spiegelberg: Handbuch der Geburtshülfe, Lahr, 1878, p. 629.

² A. D. Müller: Om Bristninger af Mellemkjødets under Fødselen (On Lacerations of the Perineum during Labor), Copenhagen, 1866.

³ L. c., pp. 133 and 170-177.

and twenty-two per cent by second intention), partial union resulted in twelve per cent, none in five per cent.

Müller's other table (l. c., pp. 123 and 164-169), showing thirty cases of incomplete laceration that were not treated at all, is not less interesting. In no case did the laceration heal by the first intention, except one, in which the posterior half was healed on the eighth day after parturition. In almost all the other cases the torn surfaces staid apart, *union taking place to the extent of a few lines only*. In one case only, complete union was obtained in the course of a month by granulation. In two other cases, the same result was indeed obtained in respectively two and a half and three weeks; but as the skin had not been torn, they do not illustrate what is generally understood by lacerations of the perineum. Serres-fines, then, applied in suitable cases, give better results than both expectation and suture.

The adversaries of serres-fines, *e. g.*, Winckel,¹ pretend that they cause as much pain as sutures, cut as easily, and are less reliable. I believe that the reason of the discrepancy in the opinions on this method is chiefly to be found in the make of the instrument. All those I found here were indeed so bad as to be worse than useless. Their chief faults are that they are much too short, and much too strong. If such short, strong steel clamps are used, it is no wonder that they hurt, and cut through, and do not help. Now, I have had some excellent ones made by Messrs. Tiemann & Co., 67 Chatham street, New York (see Fig. 6), but it has cost quite a number of attempts before they succeeded. The clamps are one and a quarter inches long, one-half inch of which goes to the legs beyond the crossing, and end in minute claws. They are made of thin brass wire, number 19 of Stub's gauge, nickel-plated, and so weak that they just keep the torn surfaces in apposition. As a rule, they can, therefore, only be used once, but as they are sold for two dollars a dozen, the expense in each case is a trifle.



FIG. 6.

What recommends this method more than anything else, is the great simplicity of the proceeding; no assistance, neither

¹ Winckel: Krankheiten des Wochenbettes, Berlin, 1869, p. 47.

skilled nor unskilled, is required. I do not even say a word to the patient, or her friends, about the occurrence of a laceration. When I have done washing her, and whilst she is still on her left side, I lift up the lips of the wound with the thumb and the index of the left hand, and apply the serres-fines with the same fingers of the right hand, one to three in number, according to the length of the rent. The one that comes nearest to the anus, is first applied, about one-third to one-half of an inch in front of the posterior angle. The following are put on, progressing towards the posterior commissure, leaving the same distance between each two. The foremost shall be put at the commissure itself. They are put on at right angles, and pushed in as deeply as the length of the legs will allow. Before putting them on, the wound is carefully cleaned with carbolized water. Very seldom does it become necessary to twist an artery, or cut off some loose shreds of tissue. The pain is quite insignificant and momentary. The serres-fines are left in place four days. Their removal again causes very slight pain. When they have been removed, the sides of the rent appear lifted up in a ridge, which subsides within a fortnight. In the places where the claws have sat are found minute ulcerations which heal readily. The instrument I recommend never cuts through in the time indicated. With the serres-fines I use exactly the same treatment as with the suture, which will presently be discussed, *i. e.*, a towel around the knees, a daily mild aperient, and vaginal injections with carbolized water. The catheter is only used if the patient cannot make water herself, and she is permitted to lie alternately on her back and on her sides.

It is impossible to indicate, in a theoretical way, precisely what cases are fit for the treatment with serres-fines. First of all, I would exclude all those in which the rent extends into the anus; and even if the anal ring has not burst, I do not think those are proper cases where the rent is high, for it is evident that the clamps can exercise their power but little beyond the surface included within their grasp. I have also met with cases in which it was impossible to fix them. This is the case in fat women with hard, unyielding tissues. It becomes impossible to raise the necessary fold, or the deeper layers are withdrawn from the grasp of the clamps, so that they

only hold the skin. But, even after all these subtractions, there remain a large number of cases in which they work admirably, nay, even a larger number than those requiring suture.

On account of its great simplicity, and the trifling pain it causes, this proceeding can be resorted to in all suitable cases. The consequence is, that many smaller rents, which else would be left unheeded, because the accoucheur does not want to make noise about a small thing, or because the woman refuses to consent to have her rent stitched up, are so perfectly united as if she never had borne a child. We have seen above that they very rarely heal, in the true sense of the word, by themselves; and we find the cicatrices left by them every day in gynecological practice. The importance of these minor rents has been strongly emphasized by Dr. Thaddeus A. Reamy, of Cincinnati,¹ and recently again by Dr. Geo. Lyman, of Boston.² A new method has been recommended for their treatment, when of old standing, by Dr. Edw. W. Jenks, of Chicago.³ I would also call attention to the excellent paper on the Pelvic Floor, by Dr. David B. Hart, in *Edinburgh Medical Journal*, April, 1879. Nobody interested in obstetrics and gynecology should neglect to read it. It is based on the above-mentioned plates of Braune. Thus, one good work engenders another. Best of all is, not to allow the minor rents to become old, and that is done in an easy, almost painless, and effective way by *serres-fines*. I therefore engage every practitioner to try them; but what I have said applies only to the instrument when made as I have described it. Everybody can convince himself of the insignificance of the pain they cause, when well made, by applying them on the fold of skin extended between the thumb and the index of his own hand.

In cases that are not fit for *serres-fines*, *sutures* are to be used. This operation is constantly being simplified. Baker Brown (l. c., p. 40) insisted on cutting the tendon of the sphincter ani muscle loose from both sides of the os coccygis, and on applying alternating quilled and interrupted sutures.

¹ Transactions of the American Gynecological Society, vol. ii., p. 576 seq.

² Boston Medical and Surgical Journal, 18th December, 1879, vol. ci., p. 881.

³ This JOURNAL, April, 1879, vol. xii., p. 252 seq.

Madden (l. c., p. 66) thinks it is necessary to use large pads or compresses, so adjusted under a binder as to force the buttocks closely together, and take the strain off the suture wires. Most operators believe artificial constipation and the use of the catheter to be indispensable. Experience has taught otherwise.

Dr. Noeggerath¹ uses chloroform in every case where a laceration threatens to occur, and sews the rent up before the patient awakes. As often some time passes before the expulsion of the placenta, and as, at least in my experience, hemorrhage is apt to occur after it has come away, when chloroform has been used, I cease the use of the anesthetic in the mean time. When all hemorrhage has been checked, and the patient washed, I again put her under the influence of chloroform, unless she be so weak that the risk would be too great.

Bantock² and Winckel³ operate in the left lateral position. This seems to be more difficult, as the buttocks come too close together, and the direction in which the needle has to be carried is rather awkward. It is most convenient to have the patient lying on a table, in lithotomy position. One can also operate on her in her bed, by turning her so as to bring the buttocks towards the edge of the bed, and placing her feet on two chairs. The latter way is preferable when she is much exhausted; but it is much more fatiguing for the operator, who is obliged to kneel down during the whole procedure. Skilled assistance is, of course, very desirable, but by no means indispensable; two persons of common intellect, generally the husband and the nurse, will do. The accoucheur himself puts the patient under influence of chloroform, but afterwards the assistant, standing on the right side of the patient, keeps up the narcosis, under the direction of the doctor. Each assistant holds one knee, bent and carried outwards with his arm, and the one placed on the left side of the patient separates the lips of the wound, while the operator inserts the index of the left hand into the rectum. He places his instruments on a small table at his right hand, or, if the operation is performed in the bed, on the chair at his right hand. As this article is not destined for specialists, but for general practitioners, it may perhaps

¹ This JOURNAL, November, 1875, vol. viii., p. 534.

² Bantock: Treatment of Ruptured Perineum, London, 1878, p. 22.

³ Winckel, l. c., p. 46.

not be superfluous to enter into such details. The wound is carefully cleaned by removing clots with a pair of forceps, cutting off loose shreds with curved scissors, and douching the vagina with hot carbolized water (one per cent). A sponge or cotton tampon with a string attached to it, in order to be able to remove it easily after the operation, is introduced above the rent. Thus, the blood is prevented from trickling down over the wound from the uterus.

Baker Brown's needles, as recommended by Dr. Albert H. Smith (l. c.), that is to say, long curved needles with an eye near the point, and fastened in a wooden handle, are indeed convenient, but they make an unnecessarily large hole; they cannot be used when the laceration extends high up into the vagina, or implicates the rectum to any considerable extent; and finally it is an instrument more to carry about, which has only a limited applicability, while common needles may be used in most parts of the body, and for the most different purposes. Dr. T. A. Emmet¹ and his school use round, straight needles. I have no personal experience with them; but I have convinced myself, by seeing them used by the master himself and others, that they are introduced with much more difficulty than the old-fashioned curved ones, with cutting edges. Admitting that they may be preferable in other operations, I do not think they are necessary in the one just now under discussion.

The material used for sewing is not of great account. The great German gynecologist, Gustav Simon, always used silk. Many use carbolized catgut. Bantock (l. c., p. 28) recommends silk-worm gut. Most operators prefer silver wire, and I do so myself. If sutures have to be introduced from the rectum, soft materials are preferable, because they do not irritate the intestine, and need not be removed. But if only vaginal and perineal sutures are used, consequently always in incomplete lacerations, silver has great advantages. It is easier to twist it than to tie the other materials, it gives support to the lax tissues, keeps the torn surfaces well adjusted, and does not absorb fluids. The silver wires, about eight inches long, are bent under a sharp angle at one end so as to form a kind of hook by which they are fastened to the silk or thread, threaded

¹ Emmet: Principles and Practice of Gynecology, Philadelphia, 1879. p. 44 and 391.

into the needle. Both ends of the thread are passed through the eye of the needle and tied with the remaining part of the thread in a half knot, just behind the head. Dr. Emmet's suture-twister, Dr. Sims' shield and Dr. Thomas' stretcher will be appreciated by everybody who tries them, but they are not indispensable. The wires may simply be crossed and twisted with the fingers. All the wires are passed before the twisting is begun, but it is convenient to twist the two ends of each wire slightly together immediately after it has been passed, in order to find, without delay, which ends belong to one another. Beginners are always apt to make their sutures too tight, the result of which is that they cut through in a few days. The two raw surfaces ought just to be brought into contact, and very slightly pressed together. Applied in this way, the sutures will indeed also cut somewhat, but not cut through. I have adopted Dr. Emmet's excellent way of

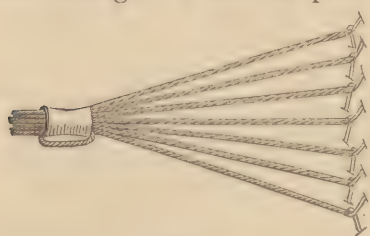


FIG. 7.

leaving the twisted wires long enough to unite them all in one bundle, in front of the vulva, and hold it together by a small piece of rubber tubing, one of the wires being bent back around the rubber band, so as to prevent it from slipping off (fig. 7).¹

I leave the sutures in place one week; when they are to be withdrawn, the wire is cut as near as possible to the mucous membrane on one side, with sharp-pointed scissors, and the twisted part drawn toward the same side. Thus the newly united surfaces are strained the least.

A recent author recommends to insert the wires fully an inch from the central line or raphe. This seems to me to be too far. The adaptation of the edges of the wound will be less accurate. I pass the sutures only a centimetre, less than half an inch, from the edges. The needle has, as a rule, to be carried behind the whole torn surface, so that the wire becomes entirely imbedded in the tissue. The only exception from this rule is Simon's triangular suture, of which we shall speak presently.

The number of sutures should not be too restricted. This

¹ Emmet, l. c., p. 395, fig. 71.

has a great influence on the result. Since I use serres-fines for smaller rents, I rarely apply less than five sutures, and when the laceration extends high up in the vagina, even if the rectum is not implicated, eight may be necessary. If only the perineal body has been torn, all the sutures may be passed from the perineum, beginning at the anus and going up to the posterior commissure. If the rent extends some way up in the vagina, separate vaginal sutures have first to be passed, beginning at the upper end and going down to the perineal body, which then is treated in the usual way. It would be waste of time to give clinical histories illustrating

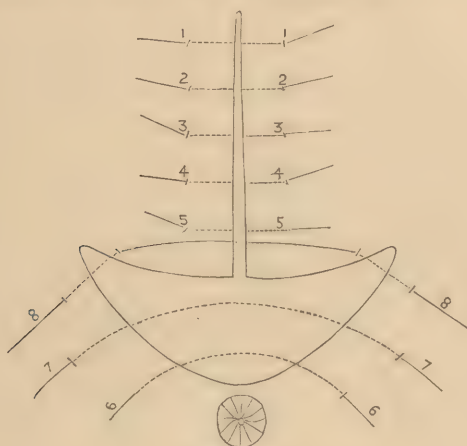


FIG. 8.

so common a thing as a lacerated perineum, but I will give a few diagrams in order to show how the sutures are passed. Fig. 8 is from a primipara, twenty-one years old, narrow pubic arch, forceps delivery. Long rent through the whole thickness of the recto-vaginal septum, except the gut. I applied a Sims' speculum under the pubic arch, directed an assistant to hold it, and drew the posterior wall of the vagina down with the left index, in order to get at the upper part of the rent. I could neither see nor feel how deep my sutures came, but I tried to embrace the whole thickness without entering into the intestine. The numbers mark the order in which the sutures were put in. Fig. 9 is from a primipara, thirty-one years old, vagina so narrow that a week before her confine-

ment it was difficult to introduce a finger; narrow pubic arch, forceps delivery. Rent through perineal body to the transparent rectum, and through vaginal wall one inch more upwards, with a smaller side-branch. The first seven sutures were of silver wire, numbers eight and nine of silk. In both cases the bowels were kept open, and the sutures were taken off on the eighth day, when the wounds were found perfectly united.

When the rent goes right through into the rectum, and extends high up, a row of sutures are first passed into the rectum, from the upper end of the rent down to the anus.

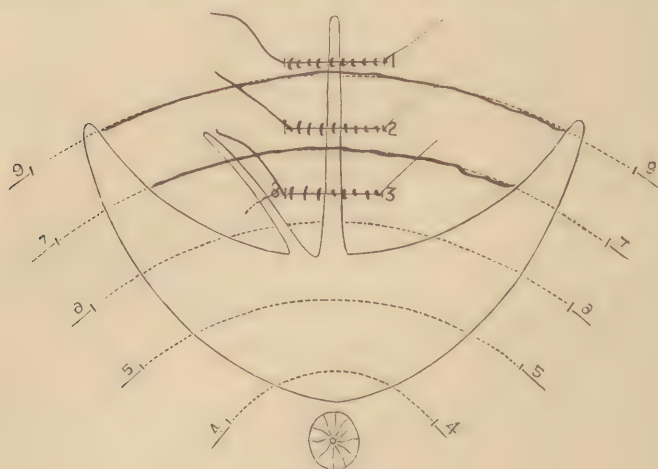


FIG. 9.

Here silk or catgut is preferable, and the sutures ought not to be very deep. Next, silver sutures are passed into the vagina in a row reaching down to the skin. Finally, a few superficial silver sutures are passed into the perineum. This disposition is Simon's so-called triangular suture, an improvement on Dieffenbach's original method.¹ Dieffenbach sewed also the three sides of the torn surface, but used deep perineal sutures. The advantage of Simon's method is, that all the traction goes in the direction of the vagina, and thus there is less likelihood of the formation of a recto-vaginal fistula just above the perineal body, where it is often found, and probably due

¹ Simon : *Chirurgische Mittheilungen*, 2te Abtheilung. Prague, 1868. p. 259.

to the traction exercised by the thick perineal body with its deep sutures.

The chief thing to bear in mind in perineorrhaphy is, that it is a plastic operation, that we want the surfaces and edges to grow together by the first intention, and that to this end they must be brought into proper contact with one another. The sutures must, therefore, be passed symmetrically, and if the regular deep wire sutures described do not entirely adjust the edges, a superficial silk one may be added between two of the others.

When the sewing is finished, the knees are firmly tied together with a towel. It is not necessary to keep the patient all the time on her side. If the knees are bandaged, the parts are not stretched when she lies on her back, and with regard to the proper involution of the uterus, it is preferable that she should lie alternately on either side and on her back. In the latter position, she feels more comfortable when a round pillow is introduced under her knees. All movements ought to be executed very slowly and with the help of a nurse. Morning and evening the vagina is injected with lukewarm carbolized water (1 per cent), until it returns perfectly pure, and the external parts are cleansed with the same fluid.

Most women who have sustained a laceration of the perineum are unable to urinate. Commonly it is enough to empty the bladder with the catheter twice a day. But it is much more convenient for all parties if the patient can make water herself, and there is no reason why she should not be permitted to do so. Fresh urine has not the least bad influence on wounds, as demonstrated by Simon. The only precaution I use is, to let her make water immediately before the injections, and to give an extra one if she urinates at other times in the twenty-four hours. Thus all stagnation and decomposition which would interfere with the healing of the wound are prevented.

The idea of keeping the bowels loose is by no means a new one. It was, on the contrary, the method used by the earlier operators,¹ until Dieffenbach, and after him Baker Brown, introduced the constipating method. It is Simon's² merit to

¹ See Bantock, l. c., p. 9; Baker Brown, l. c., p. 48; Dieffenbach: *Operative Chirurgie*, Bd. i., p. 626.

² Simon, l. c., p. 263.

have revived the old method, which has special advantages in case of the primary operation. It is much better for the general health that the patient should have her bowels moved every day, than to be kept constipated during the first fortnight of her puerperal state. This aperient method allows her to take abundant nourishing food, while most of those who favor the constipating method keep her on very low diet. The generous food is not only desirable to counteract the general debility incident to child-bearing, but has a direct influence on the healing of the wound. Finally, the danger of the agglutination giving way when at last the bowels are permitted to move, is avoided. I have myself seen the sphincter torn under such circumstances, and others have reported cases in which the whole rent was re-established, for even if emollient enemas are used, it may happen that scybala as large as a fist are expelled. I prefer castor oil to any other aperient after perineorrhaphy. Two fluid drachms every morning are generally enough. If the oil cannot be borne, I prescribe $\frac{3}{4}$ ij.-iv. Hunyadi Janos water in the morning, or a heaping teaspoonful of the compound licorice powder of the German Pharmacopea in the evening. Laxatives seem to me preferable to enemas as recommended by others, especially if there are rectal sutures, as the nozzle of the syringe may interfere with the sutures.

If, from some cause or other, the wound has not been united immediately, it is still possible to make it heal by the application of sutures or serres-fines. Nélaton even advised always to wait six or eight days.¹ Holst has obtained union by applying sutures the ninth day, and A. D. Müller has reached the same result with serres-fines put on as late as the twelfth day after confinement.² But in this kind of cases the granulations must first be made to bleed by scraping or scarifying the granulating surface, or by pressing a sponge against it.

If the period of granulation has also passed, the case no longer belongs to obstetrics, and consequently lies beyond the scope of this paper.

104 West Forty-fifth Street,
New York, January, 1880.

¹ Eustace: *Archives de Tocologie*, 1878, p. 556.

² A. D. Müller, l. c., pp. 146-147.

